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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	)	
	)	Group Art Unit: 1625
Van Dyck	)	
	)	
Serial No. 09/918,383	)	Examiner: Taylor V. Oh
Filed: July 30, 2001	)	Appeal No.:
For: Solid Phase Synthesis of Salts of Organic Acid	)	

APPEAL BRIEF

This is an appeal from the final rejection of the Examiner dated September 22, 2004 rejecting claims 1, 3-9 and 11-15, all of the claims pending in the case. This Brief is accompanied by the requisite fee set forth in Rule 1.17(f).

Real Party in Interest

Kemin Industries, Inc. is the assignee of patent application number 09/918,383.

Related Appeals and Interferences

There are no other appeals or interferences known to Appellant, the Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

The application was filed July 30, 2001. Claims 1, 3-9, and 11-15 are pending in this application. Claims 2 and 10 have been withdrawn. Appellant is appealing the rejections of claims 1, 3-9 and 11-15.

Status of Amendments

There have been no amendments filed subsequent to final rejection.

Summary of Invention

This invention is for a process for the solid-phase synthesis of salts of organic acids in granular, free-flowing, and dust-free form particularly suited for use as animal feed additives. A liquid organic acid is applied to an inert, absorbent carrier. A solid base is then added during stirring. The acid is slowly released from the carrier preventing the fast reactions that lead to the formation of clumps. The exothermic reaction releases heat which assists in reducing the moisture content of the product.

Issues

1. Whether there is support in the specification for the phrase "substantially absorbed by the carrier" as claimed in claims 1 and 14-15.

2. Whether the Moore and Mori references render claims 1, 3-9, and 11-15 obvious.

Grouping of Claims

As to the rejection applied against claims 1, 3-9, and 11-15, it is applicant's intention that the rejected claims stand or fall together.

Argument

Section 112 Rejection

The Examiner has rejected claims 1 and 14-15 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention. Specifically, the Examiner argues that there is no description in the specification as to what is meant by the phrase "substantially absorbed by the carrier."

Applicant respectfully disagrees with this statement. The specification clearly describes how the liquid organic acid is absorbed by the carrier. For example, the specification states that "a loading of between about 65% and 80% of the organic acid salt on the carrier can easily be achieved" (page 2, lines 12-13). In addition, the specification states that the method comprises the addition of a liquid organic acid to an inert carrier "in an amount sufficient to moisten the carrier" (page 2, lines 24-25).

Applicant also takes issue with this rejection, as the language that the Examiner has rejected has been present since the application was originally filed, yet the Examiner did not issue this rejection until the latest (fifth) and final office action.

Prior Art Rejection

The Examiner has rejected all of the pending claims under 35 U.S.C. 103(a) as being unpatentable over Moore (U.S. Patent No. 5,019,148) in view of Mori et al. (U.S. 5,935,635). Moore discloses a method of producing homogenous mineral granules of animal feed supplements by commingling acids and bases, and then an inert material, if used, is added after the fact for coating of the granules (see col. 7, lines 8-12). The present application claims a process in which the first step is commingling the acids and inert carrier wherein the acids are substantially absorbed by the inert carrier and then the base or bases are added. This is in sharp contrast to Moore, where the first step is to combine the acids and the bases and then an inert carrier may be added as a coating. There is absolutely no teaching in either Moore or Mori of a process in which the acids are substantially absorbed by the inert carrier before a base is added.

The order of the reaction is important in the present application because it slows down the reaction when the base is added. Since the acid is substantially absorbed by the carrier, it is not all immediately available to react with the added base. Further, the reaction takes place more

on the surface of the carrier particles that have absorbed the acid, with the result that the organic acid salt forms as a layer or coating on the carrier particles. Both of these factors contribute to the formation of granules of a desired size rather than the production of large agglomerations that must later be broken into a smaller size for feeding to animals. In addition, slowing of the rate of reaction between the acid and base constituents reduces the peak temperature in the reaction vessel. If the acid and base are added together without first substantially absorbing the acid by the carrier, the strength of the reaction releases sufficient heat to vaporize the acid resulting in the undesirable release of noxious acid vapors from the reaction vessel and a concomitant loss of the acid constituent.

The Examiner argues that it has been held that merely reversing the order of steps in a multi-step process is not a patentable modification absent unexpected or unobvious results, citing Ex parte Rubbin, 128 U.S.P.Q. 440 (P.O.B.A. 1959) and Cohn v. Comr Patents, 251 F. Supp. 437 (D.C. 1966). Applicant agrees with this assertion, but contends that Applicant's process does have unexpected, new results, and, as a result, Applicant's process is not obvious. Adding the acid and base together in the first step, as described in Moore, results in clumping of the product (the Moore product is described as "cement" (col. 3, line 30)) and requires an additional energy-consuming step to remove water (see Example 3 of Moore in which it was necessary to add water to cool the granules and later dry the granules (col. 10, lines 53-58)). These are precisely the problems solved by the present invention. Applicant's invention, which comprises adding an acid to an inert carrier, and then adding a base results in a feed acidifier that has a small particle size without the presence of fines, which does not clump during formation, and which does not require additional drying. These are new results that do not occur if the acid and

base are combined first. As such, Applicant's process has the new, unexpected, or unobvious results described in the case law cited by the Examiner.

The Moore reference does not teach a chemical process that results in a granular animal organic acid salt animal feed supplement, as claimed by Applicant. Moore describes the product as a dry, hardened cement. See Moore, col. 3, lines 30 and 68. This cement must then be comminuted to produce granules. See Moore, col. 3, lines 33-35.

Mori also does not teach the claimed process that results in a granular animal feed supplement. Mori requires the addition of a caking preventative agent, such as silica gel, to granules. A caking preventative agent as used in Mori is not an inert carrier of the present invention. The Mori caking agent is added after granules are formed to prevent the granules from sticking to each other, or caking. This is a completely different purpose than the use of an inert carrier in the present invention.

Moore teaches the production of a transient fluid adhesive (sometimes also referred to in the Moore patent as cement) which must be comminuted to form granules. Mori teaches the production of granules which will agglomerate into non-functioning clumps unless an anti-caking agent is added after the granules are formed. The present claimed invention results in a free-flowing, dust-free, granular product suitable for use as an animal feed supplement directly from the reaction vessel without comminution or the addition of an anti-caking agent.

There is also no motivation to combine Moore and Mori to teach the claimed invention. While both Moore and Mori teach the addition of a small amount of inert material, the inert material is added after the formation of granules. Neither of these references teaches the use of a substantial amount of an inert carrier as a starting material on which a liquid organic acid is substantially absorbed. There is nothing whatsoever in Mori or in any combination of Moore

and Mori that teaches or suggests the use of an inert carrier to which a liquid organic acid is applied.

Accordingly, the purpose of the claimed invention is not taught nor suggested by the cited references, nor is there any suggestion or teaching which would lead one skilled in the relevant art to combine the references in a manner which would meet the purpose of the claimed invention. Because the cited references, whether considered alone, or in combination with one another, do not teach nor suggest the purpose of the claimed invention, Applicant respectfully submits that the claimed invention patentably distinguishes over the prior art, including the art cited merely of record.

Based on the foregoing, Applicant respectfully submits that its claims 1, 3 - 9, and 11 - 15, as amended, are in condition for allowance at this time, patentably distinguishing over the cited prior art.

Respectfully submitted,

Date: January 18, 2005

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Appendix

Pending claims:

1. A process for the preparation of a granular organic acid salt animal feed supplement, comprising the steps of:

   (a) combining in a reaction vessel an inert carrier and a liquid organic acid which is substantially absorbed by the carrier;

   (b) adding to the reaction vessel an inorganic base which reacts with the organic acid in an exothermic reaction to produce a granular organic acid salt animal feed supplement; and

   (c) allowing the organic acid salt animal feed supplement to dry without the use of additional sources of heat.

2. (Canceled)

3. A process as defined in claim 1, further comprising the step of repeating the steps of adding the organic acid and adding the base.

4. A process as defined in claim 1, wherein the carrier is selected from the group consisting of a plant material, silica gel, and combinations of the plant material and silica gel.

5. A process as defined in claim 1, wherein the organic acid is selected from the group consisting of acetic, ascorbic, citric, formic, fumaric, lactic, and propionic acids.

6. A process as defined in claim 1, wherein the base is selected from the group consisting of alkali metal hydroxides.

7. A process as defined in claim 1, wherein the base is selected from the group consisting of alkaline-earth metal bases.

8. A process as defined in claim 7, wherein the alkaline-earth metal bases are selected from the group consisting of oxides of alkaline-earth metals.

9. A process as defined in claim 8, wherein the oxides of alkaline-earth metals are selected from the group consisting of calcium hydroxide and calcium oxide.

10. (Canceled)

11. A process as defined in claim 1, wherein the weight ratio of carrier to organic acid is in the range of between about 1 : 1 and about 3 : 1.

12. A process as defined in claim 1, wherein the amount of base used is sufficient to react substantially completely with the amount of acid.

13. A process as defined in claim 3, wherein the steps are repeated until the weight ratio of organic salt to carrier is in the range of between about 1.5 : 1 and about 4 : 1.

14. A process for the preparation of a granular organic acid salt animal feed supplement, comprising the steps of:

(a) combining in a reaction vessel an inert carrier and a liquid organic acid which is substantially absorbed by the carrier;

(b) and then adding to the reaction vessel an organic base, selected from the group consisting of alkali metal bases and alkaline-earth metal bases, which reacts with the organic acid in an exothermic reaction to produce a granular organic acid salt animal feed supplement; and

(c) allowing the organic acid salt animal feed supplement to dry without the use of additional sources of heat.

15. A method as defined in claim 14, wherein the weight ratio of carrier to organic acid is in the range of between about 1 : 1 and about 3 : 1.